1. CODES AND SPECIFICATIONS

A. GENERAL BUILDING CODE
The Contract Documents are based on the requirements of the 2003 International Building Code, City of Houston, TX including all addenda and amendments in force at the date of these drawings, unless noted otherwise. Also conforms to 'Perscriptive Residential Wood Deck Construction Guide' Based on the 2006 International Residential Code.

B. CONCRETE CODES AND SPECIFICATIONS
The design, detailing, and erection of all concrete elements shall additionally be based on the following:
1. "Building Code Requirements for Reinforced Concrete" (ACI 318–95), "Specifications for Structural Concrete for Buildings" (ACI 301–95) and all Committee Reports and Specifications by the American Concrete Institute (including all amendments and addenda in force at the date of these drawings). Where conflict exists among ACI documents, the requirements of ACI 318 shall govern as required by ACI 318, Section 1.1.3.
2. "Manual of Standard Practice", 1990, by Concrete Reinforcing Steel Institute (CRSI)including all supplements in force at the date of these drawings.
3. "Structural Welding Code, Reinforcing Steel", AWS D1.4–92, American Welding Society.

C. STRUCTURAL STEEL CODES AND SPECIFICATIONS
The design, detailing, and erection of all structural steel elements shall additionally be based on the following:
1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings" (ASD), June 1, 1989, by the American Institute of Steel Construction (AISC), Ninth Edition.
2. "Code of Standard Practice for Steel Buildings and Bridges", June 10, 1992, by AISC.
3. "Specification for Structural Joints Using ASTM A325 or A490 Bolts", November 13, 1985, as approved by the Research Council on Structural Connections of the Engineering Foundation (Allowable Stress Design).
4. "Structural Welding Code – Steel", ANSI/AWS D1.1–94, by the American Welding Society, 13th Edition.

D. COLD–FORMED STEEL (LIGHT GAUGE METAL) SPECIFICATIONS
The design, detailing, and erection of all cold–formed steel (light gauge metal) elements shall additionally be based on the "Specification for the Design of Cold–Formed Steel Structural Members", August 19, 1986 and December 11, 1989 Addendum, by the American Iron and Steel Institute (AISI) including all addendum and supplements in force at the date of these drawings.

All Codes and Specifications listed above shall include all amendments and addenda in force at the date of these drawings.

E. CONFLICTS IN STRUCTURAL REQUIREMENTS
Where conflicts exist among the various publications specified above, the strictest requirements of the various publications shall govern, unless noted otherwise. Where conflicts exist among the various parts of the Structural Contract Documents or General Notes, the strictest requirements shall govern, unless noted otherwise.

2. DESIGN CRITERIA

A. LIVE LOADS
1. Principal design live loads are shown below. All live loads, whether listed below or not, are based on the requirements of the building code cited in these General Notes above unless the loads listed below are greater.

CATEGORY	UNIFORM LOAD (PSF)	CONCENTRATED LOAD (#)
1. Typical Floor	100	
2. Stair Tread		300

Live load reduction may be used for any roof framing member that supports an area of 200 square feet or greater. Live load reduction shall be per the General Building Code specified above.

B. WIND LOADS
1. Design wind loads are based on a basic wind speed of 110 miles per hour, exposure category C, 50 year mean recurrence.

3. TYPICAL DETAILS

This project contains a series of details considered "Typical Details". These details shall apply to all situations on this project that are the same or similar as these details. The "Typical Details" shall apply whether or not they are indicated or cut at each location. Any questions regarding the applicability of any "Typical Detail" shall be brought to the attention of the Engineer. The Engineer shall determine the applicability of said details in question.

4. CONSTRUCTION TOLERANCES

Construction tolerances of all construction shall conform to the following documents, unless specified otherwise:

A. STRUCTURAL STEEL
"Code of Standard Practice for Steel Buildings and Bridges", Sections 6 and 7, by the American Institute of Steel Construction.

B. CONCRETE (Cast–in–place)
"Standard Tolerances for Concrete Construction and Materials", by American Concrete Institute Standard 117.

5. MISCELLANEOUS

A. CONTRACT DOCUMENTS
The General Contractor is responsible for obtaining all Contract Documents, Specifications and latest addenda and to submit such documents to all subcontractors and material suppliers prior to the submittal of shop drawings, fabrication of any structural members, and installation in the field.

B. DRAWING CONFLICTS
The General Contractor shall compare the Architectural, Structural and Mechanical/Electrical/Plumbing drawings and report any discrepancy to the Architect and Engineers in writing prior to the fabrication and installation of any structural members.

C. RESPONSIBILITY OF THE CONTRACTOR FOR STABILITY OF THE STRUCTURE DURING CONSTRUCTION
All structural elements of the project have been designed by the Structural Engineer to resist the required code vertical and lateral forces that could occur in the final completed structure only. It is the responsibility of the Contractor to provide any bracing needed during construction to maintain the stability and safety of all structural elements during the construction process until the structure is tied together and completed.

6. SUBMITTALS

A. SUBMITTALS
The General Contractor or Subcontractors shall prepare all submittal items as noted below:
1. Shop Drawings
2. Manufacturers Literature for Products, Assemblies, and Hardware
3. Product Certifications, Mill Certificates and Affidavits
4. Design Calculations

B. SHOP DRAWINGS
1. The General Contractor shall submit for Engineer review shop drawings for the following items:
   1. Grade Lumber
   2. Wood Connectors
   3. Concrete Mix Design

   Items marked (*) shall have shop drawings sealed by a registered engineer in Texas.
   Items marked (#) shall be submitted to the Structural Engineer for record only and will not have the Engineer's shop drawing stamp affixed.
2. All shop drawings must be reviewed and sealed by the General Contractor prior to submittal.
3. Contractor shall submit a minimum of one set of sepias and two sets of prints for all shop drawings specified to be returned by the Engineer, unless more sets are required by the Specifications.
4. The omission from the shop drawings of any materials required by the Contract Documents to be furnished shall not relieve the Contractor of the responsibility of furnishing and installing such materials, regardless of whether the shop drawings have been reviewed and approved.

C. MANUFACTURERS LITERATURE
Submit a minimum of two copies of manufacturers literature for all materials and products used in the construction on the project.

D. CALCULATIONS
The General Contractor shall submit for Engineer's review a minimum of three sets of design calculations sealed by a registered engineer of Texas for the following items:

1. Pre–Manufactured Trusses (*)

E. REPRODUCTION
The use of reproductions of these conctract documents by any contractor, subcontractor, erector, fabricator, or material supplier in lieu of preparation of shop drawings signifies acceptance of all information shown as correct, and obligates the user to any job expense, real or implied, arising from any errors that may occur.

F. The structural drawings shall not be scaled to determine any dimension not noted. Contact the Structural Engineer for additional dimensional information, if required.

7. CONTRACTOR SUBSTITUTIONS

During the submittal process, the Contractor may submit alternate materials or products which are not shown or specified in these drawings. These submittals shall clearly indicate that the Contractor is requesting a substitution. The submittal shall include the name of the material or product which is specified in these drawings.

Engineer will review and approve the substitution request only if the following criteria are met:

a. The substituted material or product shall be equal to or better than the specified item. Include manufacturer's literature or documentation.
b. The substituted material or product will result in a cost and/or time savings to the Contractor. This time and/or cost savings must be passed on to the Owner. The potential savings must be included as part of the substition request.
c. The substituted material or product must be approved by the International Conference of Building Officials (ICBO). Include the ICBO report with the substitution request. Submittals not meeting these criteria will not be reviewed or considered by the Engineer.

8. SITE OBSERVATIONS BY ROBERT L. WRIGHT AND ASSOCIATES

The contract structural drawings and specifications represent the finished structure, and, except where specifically shown, do not indicate the method or means of construction. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, safety and sequence.

The Engineer shall not have control or charge of, and shall not be responsible for, construction means, methods, techniques, sequences, or procedures, for safety precautions and programs in connection with the work, for the acts or omission of the Contractor or Subcontractor, or for the failure of any of them to carry out the work in accordance with the contract documents.

Periodic site observation by field representatives of Robert L. Wright and Associates is solely for the purpose of determining if the work is proceeding in accordance with the structural drawings. This is limited site observation and should not be construed as exhaustive or continuous to check the quality or quantity of the work, but rather periodic in an effort to guard the Owner against defects or deficiencies in the work of the Contractor or Subcontractors.

9. CONCRETE

A. NORMAL WEIGHT CONCRETE
All normal weight concrete shall conform to the requirements specified below, unless noted otherwise on the drawings:

Location	28 Day Compressive Strength (PSI)	Maximum Size of Aggregate
1. Spread Footing	3000	1 1/2"
2. Gradebeams and Caps	3000	1 1/2"
3. Slab–on–grade	3000	1 1/2"

All concrete shall be proportioned to have a maximum water/cement ratio of 0.5.

B. CONCRETE MIX DESIGNS
1. Engineer Approval. Submit all concrete mix designs at least 14 days before the start of the concrete placement for approval by the Engineer. Any proposed changes to an approved mix design (including changes in admixtures or aggregates) must also be submitted in writing to the Engineer for approval.
2. Pumpable Concrete. Concrete that will be pumped shall have the mix proportions adjusted to be compatible with the pumping requirements. Indicate on the submitted mix design if the concrete has been designed to be pumped.

C. CONCRETE FORMWORK
1. RESPONSIBILITY
The design, construction and safety of all formwork shall be the responsibility of the General Contractor. All forms, shores, reshores, backshores, falsework, bracing, and other temporary supports shall be engineered to support all loads imposed including the wet weight of concrete, construction equipment, live loads, lateral loads due to wind and wet concrete imbalance. The Contractor shall also be responsible for determining when temporary supports, shores, backshores and other bracing may be safely removed.
2. DESIGN
The design of all concrete formwork, formwork removal, shoring, reshoring and backshoring shall be performed by a registered professional engineer in the state where the project is located employed by the Contractor. Calculations, sealed by the registered professional engineer, shall be submitted for record.

D. CONCRETE FINISH
Refer to Architectural drawings for finish requirements of slab–on–grade.

10. TESTING LABORATORY SERVICES

Owner shall hire a Testing Laboratory to perform standard on–site testing during construction.

11. ANCHOR BOLTS

A. SPECIFICATION
All anchor bolts shall be made from threaded round stock conforming to ASTM A36 steel unless noted otherwise on the drawings.

B. NUTS
All nuts with anchor bolts shall be hex head conforming to ASTM Specification A563.

C. WASHERS
Washers for all base plates shall be 1/4" thick plates extending minimum 1" from edge of base plate holes on each side with holes 1/16 inch larger than the nominal bolt diameter. Washers shall conform to ASTM A36 steel.

12. CONCRETE ANCHORS

A. USE
Anchors (expansion bolts or adhesive anchors) may be used only under the following conditions:
1. Anchors are specifically detailed on the structural drawings.
2. Written documentation or a drawing is issued to the Contractor from the Engineer during construction.

Use of anchors to replace or repair a detail shown on the drawings without prior approval of the Engineer is not allowed.

B. SPECIFICATION
1. ICBO Approval. Anchors shall be approved by the International Conference of Building Officials (ICBO). Submit the Research Report if requested by the Engineer.
2. Expansion Bolts in Concrete.
   a. Type. All expansion bolts in concrete shall be wedge type expansion bolts. Sleeve type anchors shall not be used in structural applications.
   b. Interior Use. All expansion bolts, nuts and washers for use in interior, air–conditioned environments shall be manufactured from carbon steel zinc plated in accordance with Federal Specification QQ–Z–325C, Type II, Class 3.
   c. Exterior or Exposed Use. All expansion bolts, nuts and washers for use in exposed or potentially wet environments, or for attachment of exterior cladding materials shall be galvanized or stainless steel. Galvanized bolts, nuts and washers shall conform to ASTM A153. Stainless steel bolts shall be manufactured from 300 series stainless steel and nuts and washers from 300 series or Type 18–8 stainless steel.
   d. Nuts and Washers. Nuts and washers shall be furnished from the bolt manufacturer specifically intended for use with the bolts.
3. Adhesive Anchors in Concrete.
   a. Type. Adhesive anchors in concrete shall consist of a threaded steel rod set using a two–part vinylester blend resin plus a hardener, contained in a two piece plastic cartridge separating the components and providing a static mixing when dispensed into the hole.
   b. Interior Use. All expansion bolts, nuts and washers for interior air–conditioned environments shall be manufactured from ASTM A36 steel.
   c. Exterior Use. Adhesive bolts used in exterior, exposed, potentially wet environments shall have threaded rods manufactured from 300 series stainless steel. Nuts and washers shall also be stainless steel.
   d. Nuts and Washers. Nuts and washers shall be furnished from the manufacturer specifically intended for use with the bolts.

C. INSTALLATION REQUIREMENTS
Expansion bolts and adhesive anchors shall be installed in strict accordance with manufacturer's instructions. All safety warnings, drilling requirements, cleaning instructions and other requirements shall be followed.

D. USAGE LIMITATIONS
1. Expansion Anchors.
   a. Shock and Vibration. Expansion anchors shall not be used in installations with impact or vibration such as vibrating machinery, crane rails, elevator guide rails, etc.
2. Adhesive Anchors.
   a. Fire–Resistive Construction. Adhesive anchors shall not be used to support fire resistive construction.
   b. Elevated Temperatures. Adhesive anchors shall not be used in a vertical or overhead condition requiring a fire rating, unless otherwise protected from elevated temperatures.

13. DRILLED PIER FOUNDATION

A. SPECIFICATION
Drilled pier construction shall conform to the requirements of the "Standard Specification for Construction of Drilled Piers" (ACI 336.1) published by the American Concrete Institute, except as modified by the General Notes, the structural drawings, or the Specifications.

B. DESIGN SOIL PRESSURES
Design soil pressures are as follows:
1. Total Load – 3000 PSF net soil pressure.
2. Sustained Load – 2500 PSF net soil pressure.

C. REQUIREMENTS FOR UNDERREAMS
1. Bell Configuration. The sides of the underream shall slope not less than 45 degrees with the horizontal. The bell roof slope shall be a straight line or curve upward. The thickness of the bottom edge shall be at least six inches.
2. Underream to Shaft Diameter. The diameter of the underream shall not exceed two times the diameter of the shaft.
3. Caving of Underream. The Architect and Engineer shall be notified if slickensided clays or sand layers are encountered at any drilled pier location that cause sloughing or caving of the underream. If underreaming is not possible, then drill the pier as a straight shaft with the same diameter as the underream diameter or discuss other options with the Engineer.
4. Inspection. Each underream and reinforcing steel cage shall be cleaned and approved by the authorized inspector prior to placing concrete.

D. CONCRETE COVER
1. For uncased piers, the minimum cover for reinforcement shall be 3" clear from the face of soil.
2. For piers with temporary casings to be removed, a minimum cover of 4" shall be provided between the outside face of the casing and the outer edge of the reinforcement.

E. BEARING ELEVATION
The bottom elevation of all drilled piers is shown on the drawings for bid purposes. The actual required bearing elevation may vary as required to provide proper bearing capacity in an approved bearing stratum as determined by the Geotechnical Engineer or other authorized field inspector. The Drilling Contractor shall submit actual depths of penetration and pier bottom elevations to the Engineer for record.

F. TOP ELEVATION
The top of all piers should be placed at the bottom of the deepest intersecting beam, wall or cap supported by the pier. The Contractor shall calculate the elevations of all pier tops prior to the drilling operations and submit the elevations on the pier reinforcing steel shop drawings for review by the Structural Engineer.

14. STRUCTURAL BOLTS AND THREADED FASTENERS

A. SPECIFICATION
1. A325 Bolts. All bolts in primary structural connections shall conform to ASTM A325 Type 1, High Strength Bolts for Structural Steel Joints, unless noted otherwise on the drawings.
2. Threaded Round Stock. Threaded rods conforming to ASTM A36.

B. DESIGN
1. Minimum Bolt Diameter shall be 5/8 inch.
2. Connection Type. Unless noted otherwise on the drawings or in these General Notes, all bolted connections shall be bearing type connections using standard holes (hole diameter nominally 1/16 inch in excess of nominal bolt diameter) with threads included in the shear planes.
3. Shear Connection of Welded Moment Connected Pieces. All shear connections of welded moment connected pieces shall be friction type connections using high strength bolts.

C. INSTALLATION
1. Fastener Tension.
   a. High strength bearing bolts shall be tightened using an impact wrench to a snug tight condition. The snug tight condition is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a person using an ordinary spud wrench.
   b. High strength slip–critical bolts shall be tightened using indicator bolts or load–indicator washers to the required pretension as specified by AISC.
2. Bolt Lubrication. All bolts shall be well lubricated at time of installation. Dry, rusty bolts will not be allowed.
3. New Bolts. All bolts shall be new and shall not be reused.

15. WOOD FRAMING

A. All lumber and its fastenings shall conform to the National Design Specification for Wood Construction, latest edition, by the National Forest Products Association.

B. All wood framing shall be Southern Yellow Pine, Grade 2, or approved equivalent. Design properties:

1. 2x4 –Fb= 875 Psi (1006 Psi for repetitive members); Ft= 500 Psi; Fc(perp.)= 565 Psi; Fc(parallel)= 975 Psi; Fv= 90 Psi; Ew= 1,600,000 Psi.
2. 2x6 –Fb= 1250 Psi (1438 Psi for repetitive members); Ft= 725 Psi; Fc(perp.)= 565 Psi; Fc(parallel)= 1600 Psi; Fv= 90 Psi; Ew= 1,600,000 Psi.
3. 2x8 –Fb= 1200 Psi (1380 Psi for repetitive members); Ft= 650 Psi; Fc(perp.)= 565 Psi; Fc(parallel)= 1550 Psi; Fv= 90 Psi; Ew= 1,600,000 Psi.
4. 2x10–Fb= 1050 Psi (1208 Psi for repetitive members); Ft= 575 Psi; Fc(perp.)= 565 Psi; Fc(parallel)= 1500 Psi; Fv= 90 Psi; Ew= 1,600,000 Psi.
5. 2x12–Fb= 975 Psi (1121 Psi for repetitive members); Ft= 550 Psi; Fc(perp.)= 565 Psi; Fc(parallel)= 1450 Psi; Fv= 90 Psi; Ew= 1,600,000 Psi.

Alternate Wood Properties

C. All wood framing shall be Douglas Fir–Larch, Grade 2, or approved equivalent. Design properties:

1. 2x4 TO 2x12 –Fb= 875 Psi (1006 Psi for repetitive members); Ft= 575 Psi; Fc(perp.)= 625 Psi; Fc(parallel)= 750 Psi; Fv= 95 Psi; Ew= 1,600,000 Psi.

D. SPF lumber is not acceptable for floor joists or beams. SPF stud grade is not acceptable for stud walls. SPF utility grade is not acceptable for anything.

E. Mudsills shall be pressure treated within 18" of grade.

F. Provide solid wood blocking at supports, ends of cantilevers, halfway between supports and end of cantilever, and 8"–0" o.c. maximum of any horizontal span.

G. Connectors for wood construction as manufactured by Simpson Strong–Tie Company, Inc. shall be used for connections of all structural wood members, i.e., trusses, joists, beams, columns, etc.. Connectors shall be properly sized according to member sizes and applicable loads. Connectors shall be ICBO approved.

H. All bolted connections for wood connections shall conform to ASTM A–307. All bolt holes are to be predrilled and fitted such that the wood element is not damaged.

I. The number and size of nails connecting wood elements shall not be less than the Nailing Schedule below:

ISSUE LOG

NO.	DATE	DESCRIPTION
1	09/14/10	FOR BID

Lauren Griffith Associates
Landscape Architecture and Planning
5252 Westchester Street, Suite 170
Houston, Texas 77005
(713)838-7120/fax(713)839-7778
lgriffith@laurengriffithassociates.com

WHITE OAK STUDIO
LANDSCAPE ARCHITECTURE
7413 Westview Drive, Ste. E
Houston, TX 77055
Tel 713/682-2638

ROBERT L. WRIGHT & ASSOCIATES, INC.
5252 Westchester, Suite 170
Houston, TX 77005
Tel 713/522-2210

SEAL:

STATE OF TEXAS
ROBERT L. WRIGHT
68048
LICENSED
PROFESSIONAL ENGINEER
8/9/10

Parks Capital Improvement Program
for City of Houston
General Services Department and Parks & Recreation Department

PARK NAME :

Memorial Park Tennis Center Deck
1500 Memorial Loop
Houston, Texas 77008

CITY OF HOUSTON
GENERAL SERVICES DEPARTMENT

REVIEWED :

PARKS PROGRAM MANAGER
HERMANN PARK CONSERVANCY
PROJECT MANAGER

DATE : 08/19/10
WBS No : XXXXXX-XXXX-X
SCALE : AS NOTED
DRAWN BY : LMD
CHECKED BY : RLW

SHEET TITLE :
GENERAL NOTES

SHEET NO. :
S - 1.0

CITY DWG. NO. :